

LESION OF BOTH TEMPORAL LOBES, WITHOUT WORD-DEAFNESS OR DEAFNESS.*

BY LANDON CARTER GRAY, M.D.

IN June, 1885, there was admitted to the Hospital for Nervous and Mental Disease a man of about fifty, of whom his friends related that he had had a severe convulsion a few days before, this convulsion having lasted over an hour. Tested by the proper instruments of precision—such as the dynamometer, the æsthesiometer—no abnormal motor or sensory symptoms were detected. He spoke distinctly and expressed himself correctly. His pupils were normal, both in appearance and in their reflex responses. Ophthalmoscopic examination revealed nothing abnormal. No cephalalgia. But there was a most remarkable and absolute loss of memory for all events since about the date of his convulsive attack, and also a slight, not very marked, loss of memory of most events of his previous life. He could not remember any thing from one moment to the other. For example: I would go into his room and ask him why he had hammered so noisily upon the door. He would answer that it was because he wanted to get out, as he could see no reason for his confinement. "Where am I? why am I detained here? what have I done?" I would explain to him that he had been sick, had lost his memory, and was therefore shut up in his room for his own good. Then he would beg my pardon, express regret that he had disturbed anybody, and would earnestly promise to bear my explanation in mind. I would then

* Read before the American Neurological Association, July, 1886.

leave the room, and by the time I was twenty feet away the hammering on the door would be renewed with all its former vigor. Returning to his room, he would be asked the same questions, make the same explanation, have the same regrets expressed, and have the same assault on the door echo through the building before I had been out of the room a minute. Finally I made him write these words on a large sheet of paper, in a large hand : "Mr. B. has promised Dr. Gray that he will not hammer on the door, as this is a hospital for sick people." I made him pin this paper on the wall just in front of where he generally stood or sat. I then left the room. The hammering occurred as usual. Going back to his room, I pointed out to him the sheet of paper, upon which the ink was still wet. As he read it, his countenance expressed the utmost surprise. "Did I write this? When?" he inquired. And so it went on from day to day. At first he could not remember me or my name; then he began dimly to remember my face, without being able to recall when he had seen it; and finally, after the lapse of several weeks, during which I saw him almost daily, he was able to recall my name after long meditation. It was the same way with his attendants. He promptly named all objects that he saw. He recognized the meaning of sounds, such as those of language, of a machine-saw, snoring, wagons in the street, etc. His sense of smell was perfect. His mental faculties, other than the peculiar loss of memory, seemed to be intact. Of course, there was a certain timid, questioning air, as of a man who has lost his self-confidence, such as he expresses in his letters which I am about to read. Although I could obtain no positive evidence of any specific disease, his life, as I came to learn, was certainly such as to have exposed him to great danger of it. For a year or two past he had suffered considerably from insomnia and occasional slight headache, and during this time he had been growing to be fretful, although not sufficiently so to create remark or to interfere with his avocation, which was that of a clerk in an insurance office.

It soon became impossible to keep him in the hospital, as he hammered so persistently on the door of the room to

which the overcrowded condition of the hospital rendered it necessary to confine him. Dr. E. E. Smith, of the Morris Plains Asylum, very kindly undertook to take charge of him, in view of the great interest of the case. Thither, then, he went, in the latter part of June, 1885. The following letters will indicate his mental condition until within a week of his death :

July.

read the other 1st, I don't know when I wrote this.
DEAR P.

To begin with, this pen is bad. There is a good deal written to you in the hieroglyphics, but I 'll just say a few words here right straight out of my little head. For the date of this my memo. says 13th July but you 's better try the post mark for that. I, in a former letter I think, asked you to bring a pr of scissors to trim down my whiskers a little. if you only knew what a bad pen this is, you 'll bring me a fine Gillott, too. The scissors not to be left here. The stamped envelope however goes ahead of everything else, and is a good idea on your part.

Bless " heart)

The 1st remark must explain the blots. The umbrella is exquisite and the Straw Hat is simply lovely. The Morristown paragraph of your letter is cut out and placed in the lining of my hat, where I can see it. (after breakfast) I think it is the 10th July. I received a Box, with HAT, SOCKS & HANDKERCHIEFS, and I also got a NICE LITTLE UMBRELLA. I will not attempt to make any excuses for not sending you more letters, and will only say that I have torn up a good deal written to you. I have yours of June 25th & July 5th. Next autumn I hope to be nearly well, perhaps quite. I have no doubt about your taking me out of this hospital, as soon as it is proper for me to leave it, and therefore I am willing to abide my time, and my conscience reproaches me not for any wrong doing as the cause of my incarceration. "There 's no place like home," and I now feel that I have one yet. (later) same day I think. I 'm lying on a sofa, and have just done the inky erasing on the other side of this leaf. when I alluded to your Morristown paragraph overleaf, I certainly told a fib or else my imagination deceived me, for the paragraph in *re*—your going to visit Mrs. C., is not cut out at all nor anything else. The pencil is decidedly the best for me to conclude this letter & it can only be concluded at intervals, so peculiar is my nervous condition.

late.

I don't know when I wrote this, but I'll send it.

P. The date I know not. It is 5 o'clock A.M. a little later and I am in bed, and have been awake some time. While there 's life there 's hope, and mine is preserved by it. I do not know how many times I have made the same remark. The recent past is to

me as nothing. I find myself here in Morris Plains Asylum, I think, and know not how long I've been here, but remember that you placed me here, by the advice of Dr. L. Carter G., and, though I may repeat, I'm contented, if you did it. I do not remember when I saw you last, but I know you will come when you can.

September.

DEAR P.

I have yours of Sep. 20—85 dated No. 124—I also have Sep. 6th from you. As in the first mentioned you give me, I stopped to make as near as I can, a quill pen, out of a tooth pick. You can see that it is a poor success. This pen is a split tip of a tooth pick to which a rubbing on the stone window sill has given a point, and which is stuck in my fountain-pen handle, with which I am writing, though I cannot shade with one nib—as the pen is only *one* split tip of a tooth pick. Now, P., I'm in my room, and I have before me your letter of the 20th Sep. from the house of your old friend Mrs. P., where I shall expect to address you all winter—and I'm glad you are where I've been to see you and I hope I may yet see the day, and a not far distant one, when I may either visit you again, or, better, live with you. "All ready + + + for a walk" has sounded—after the three crosses I am returned from the walk & you see what a different hand I'm writing. As I have no blotting paper (of which you might bring me a piece) I find it *so* very convenient to dip the point of the tooth pick, with which I am writing, in the blot, that you must not be surprised hereafter if I make blots on your letters, for tooth picks do not take up the ink of my fountain pen as well as the steel pen does. In fact I'm almost ashamed to send even my own sister such a blotted letter. So, P., a pen would be crushed in a letter I suppose, but I'll try to get one here. The trouble is it would not be as *fine* as I like. Now in the twilight I will glance over your sweet little letter of Sep. 20th—On the 3d line of the 1st page of this letter—I don't know now what I intended to say. I've since been walking, and did not see that omission when I began again. The last glimpses of day light are going fast & the $\frac{1}{2}$ doz red lines of cloud right under the moon in front of my window are very pretty, and the view is very extensive & I can now see nothing but trees & green grass & corn ripening & I feel homesick for a sight of you, as you once said in one of yours to me, I think: I *can* see more than that stated 4 lines above but I'll only mention the pretty little church—I'll put a piece of newspaper on that last blot 2 lines above, and its too dark to write any more.

October.

I began (don't now remember *what*, as I stopped).

I write this by gas—and found the above two words "I began," (and all that is below—As the gas flickers, I think I had better defer till to-morrow.

M. P. September? 1885.

(There 's a good deal more written to you than this and to-morrow I 'll read it all over).

Dear P.

I have here yours of Sept? 25th, and it is all closely interlined, and the blank part filled up, and it does not, today, look to me, in proper condition to send to my sister, and as you have given me such a *sweet tablet*, and such a nice letter of the 25th Sep., I am going to try it again, and keep your pretty note, which is not much impaired by my fine pen. The quills you so kindly sent me are a comfort to me, and although I do devour almost everything I can, I will not "chew up" as you say, *these* picks, as I remember I used to do. When I first read your letter, I fancy I may not have been quite as much myself as now—Right you were about this air, and you did right to send me here—My recollection of Dr. S. is, of a slender, tall, exceedingly gentle & kind hearted man, and the last time I had the pleasure of writing to you, I could not I think, remember him quite as distinctly as now. I hope his sojourn in Europe will send him back cured. I must economise room. You encourage & comfort me when you tell me how much I am improved. It is lucky for me that I remained, or say, that I returned home, where you could look after me—for you could not have done better. My right eye is a trifle inflamed, (only for short time), at any rate, I have no doubt that it is only temporary & and so it was. You must refresh my memory : and you can laugh at my mistakes, but Mrs. C., how is she connected with us. (a 2d cousin—I 'd tell you all about her if I dared) I know she 's one of your "boosom" friends, as Uncle called them. Was not she a W ks? & a sister to Mrs. M.? I, of course, could never forget such a name as Bridget Britt, but although I must have made Bridget's acquaintance, I cannot recall *her*. You must have bought the undershirt I have on, and, if you remember the length of it, do not let it be *quite* so long, for when I sit down I have to draw it up sometimes, as there are things more agreeable to sit upon than its border. Never mind, P., that 's much better than scantness : it is much better to be on the safe side.

Glad I am that you 'll write me "another and a longer letter soon." I have your sweet little envelope all safe—I also have, I have just found, another long letter to you & I 'll now read over you know why, but never mind—It is not as easy as usual for me to write, as my desk is my left hand only and I have one of those deep splits in the right thumb, just above the upper edge of the nail, where the pen rests, and another split (or chap) in the right fore finger, right in the crease of the finger, above where the thumb nail goes on the pen so writing is not easy today.

If you would send me a *small* piece of cort plaster in a letter. It is now evening, and so I 'll say very little—I will probably cut the sheet in half. The rackett is so great that I will postpone this.

It is now morning again. The hills are becoming variegated again. I guess I 'll wait now, until I 've got a cup of coffee inside, before finishing. If you ever receive any of this you can call it the lazy man's letter, for I 've been pretty long at it. There 's a big man *snoring*, within five feet of me, & so I 'll change my base. Between that and the two gaps in thumb and fore finger, & the promenading (not mine) in the hall, I 'm nearly wild. never mind, I 'm beginning now to treat the whole thing as a huge joke.

I never before got a letter in such a confused state, and am being paid for the torture I once inflicted myself.

(Later) never mind, let us hope—The sun, now pleasant, will be obscured in about 5 minutes, and I 'm ready for some tea, and perhaps under its invigorating effect, I may say a few more words. I cannot afford to waste room, but this line is not on same day written as the previous. You will probably be able to know pretty nearly the date by its being the 1st day of a heavy rain storm, probably a N.E.er—I get my letter paper badly mixed up, and at the present moment I am conscious that I 'd better postpone writing this, through nervousness.

October 11, 1885.

DEAR P.

Do you know who wrote my name on this tablet? perhaps I 've asked before.—Its a treasure, it is just lovely. On a later day I answer *myself*—it must be *you*. Its one of those cloudy-sunny days—alternating. My young little old rosy cheeked friend, Willie Hearney, who was and is Mr. Madden's assistant, and who has lately had the Typhoid fever, is back again—He is not quite so stout, but looks well. You must know him—he is quite young. When did I last see you? There is a middle aged gent 'n here, rather stout, (none other could possess such a robust voice) who fills the hall with three or four base notes, which, while they make the building almost shake, you can not help thinking them to be musical—and we have a good tenor too; or we *had*. (he may be gone). The sun is a little too warm here, but I can use the curtain. I am writing on my hand—There is hardly any place on the hall but where some nervous fellow, who cannot keep still, drives me away—middle aged men act like children, sometimes. I now, for a little while only I suppose, find quiet in my own room, and have the benefit of a table. Your blank page I filled up closely, and then drew my pen through every line of one page, but there are three pages that I may send. I have written, but keep here, much to you; between lines of Sept. 25th, but now I have this sweet little tablet, I wont send it, and now I can keep your letters to myself, and they will be valuable, to refresh my memory, as well as to feast my eyes. It is hard enough to have to use hen tracks for stammering old colonels, like Johnston & Dickinson. "morning N. Y. papers" is just sung out, but not a "red" have I., but then, I 'm pretty sure, we can see them in the reading room, if we want to badly. We 're on a walk and taking

a rest—so called—but a pistol has just been discharged—& we're now again making another move. I'm now enjoying a quiet rest in the parlor, which is quiet, notwithstanding 6 or 7 people. The day is fine and just about as much or rather a little bit more of a strong breeze is blowing on me than I can well stand; but it easy to move. It is easy to find a warm place in the sun, & it is 20m past 12, so dinner hour is near—When did I last see you & when again? I suppose I can easily find a memorandum. Did you not bring me something nice to read in the way of a novel or story. and would it be easy for you to do so? I fear not, oh how grateful the sun is on my back.

Not so, however *to-day* an apple tree trunk is though, against which I'm standing, again we're resting and the view, though not grand is pretty on a-c of the different colors presented by the changing leaves & I'm making the fountain pen *fly* over the paper on my hat crown. There is but one very small cloud.

There are only six of us out walking including Mr M. you mustn't be surprised if I repeat—when were you & when will you be, here—we now resume our walk—au revoir—I think there is a change for the better in me. I will enquire the date—I'll review this & note if any repetitions occur. Its after tea, during which I upset tea on table cloth. Writing by flickering gas. I'm meditating a diary—When did I see you? & when will I? Old Time, with *me*, I think, does his work, always for the better, and when I call it Time, you know what I mean—Refresh my memory in regard to yourself—& tell me what changes have taken place with you—You know I'm forgetful. I had a shorthand indexed & several books, whieh I kept, which I've managed to hold on to—Also tell me when I will be likely to see you again. I'm now going to postpone this for I don't want to lose my good sight and the gas is jumping Mr Madden has just called out "All ready for the ball room (Jim Crow. I don't care to go to the Ball room

There are two pages written that I think I'll send with this, but as this is evening, I will leave the balance till I've had a night's sleep. so good night.

Oct. 11th, 1885. This is another fine day Sunday. I'm going to ask you again for a piece of *cort plaster* for splits one of which is now very bad. I will not feel like myself till I've taken some medicine. "All ready for a walk—"

Again I think I've written more than I'll send—As it is gas light & *before* supper, I will postpon till, either after a cup of tea or that & a night's sleep.

Here I am again, before *dejeuner*, on a magnificent morning, and I'm in a rocking chair, writing on the convenient flat arm. The sun is pretty well up, and has raised a mist all over the land in the distance, and has made the leaves of the trees, dazzling. The day continued perfect.

Somebody has given me something which takes the place of *cort plaster*, color of which is white, and sticks in the same way—I just made the remark, what a perfect conductor of sound this hall is—

Oct. 12th, You see my letters have taken the shape of a diary but I do not mean to keep up that system.

Refresh my
P, While I think of it,

These letters constitute very interesting reading to me. The last one was written about a week before the patient's death, and it is the first one in which there can be detected any mental confusion, over and above what may be attributed to the peculiar loss of memory. They furnish, moreover, curious intrinsic evidence of this loss of memory, as will be observed.

Through the kindness of Dr. Edwin Everett Smith, Dr. E. C. Booth, and Dr. C. L. Wertenbaker I am enabled to state that the patient remained in the same condition until October 15th, although I am not able to state as to whether any precise tests of motility and sensation were applied to him during this period. I myself never saw him alive after he left Brooklyn. Upon October 15th, he had a series of convulsions, some nineteen in all, and when these subsided he remained unconscious. The next day he was delirious, talking incoherently, and would, if not watched, get out of bed and wander around the room. He continued in this state until October 19th, strength gradually failing him, and died without further convulsion.

Autopsy twenty-four hours after death. Present : Dr. E. C. Booth, Dr. A. H. P. Leuf, and myself. My friend, Dr. Leuf, very kindly made the autopsy for me with his usual skill and thoroughness. Skull normal. Dura mater normal. Extensive lepto-meningitis, with adhesions and ecchymoses, the details of which are as follows :

In the left hemisphere, marked lepto-meningitis over the lower third of the ascending frontal and parietal convolutions, with strong adhesions; small adherent meningitic patch over base of second frontal; several small adherent patches in tip of first frontal; large, adherent patch over third frontal, which was softened; large adherent meningitic lesion of first and second temporal convolutions. There were several minute hemorrhages in the first frontal convolution, upper parietal lobule, and the occipital lobe.

The left temporo-sphenoidal lobe was much softened. Upon the left mesial surface, the gyrus forniciatus was softened and its surface was covered by a slight lepto-meningitis. On the right hemisphere, there was an adherent lepto-meningitis over the lower third of the ascending frontal and parietal convolutions, over the gyrus marginalis, and curving forward again over the first temporal convolution to its very tip. Upon the right mesial surface, there was a very adherent lepto-meningitis over the gyrus forniciatus. The softening presented no special characteristics. Outside of the details mentioned, there were no abnormal appearances whatsoever.

It will thus be seen that the lesions on both sides were almost entirely in the area of distribution of the Sylvian artery, although the mesial meningitis was within the territory supplied by the middle internal frontal branch of the anterior frontal artery.

This case is in entire accord with the one lately reported by Professor Westphal, of Berlin.

C. Westphal : *Ueber einen Fall von Zerstörung des linken Schläfenlappens durch Geschwulstbildung ohne aphatische Störungen. Berliner klinische Wochenschrift*, Bd. 21, No. 49, S. 777, Dec. 1, 1884.

Adult, male: attack sudden, and without apparent cause. Onset was sudden; nausea, pain in forehead and temples, tinnitus aurium, and a pulling and twitching sensation in the right extremities; also biting of the tongue, then sudden darkness, a fall, and unconsciousness. Remained so for fifteen minutes, after which he retained a headache. Repeated attacks, exactly as narrated, occurred at varying intervals of from one or two days to fourteen days. This continued four years, the patient meanwhile attending to business (character not stated). At the end of this time he gave up, because walking made him fall over backwards. Twelve days after stopping work, on Feb. 26, 1883, he came to the hospital, where he became comatose, would not respond if called to, occasionally uttered a few monosyllables, had to be fed with a tube, and held his teeth close together. Urination involuntary. From this attack

he recovered, but had a number of others. During the intervals his only symptoms were aching headache and sacral pain on laying down. Locomotion was a little difficult, but there was neither motor nor sensory paresis. Attempts at walking (a little later), and sometimes, no matter how carefully done, would cause him to promptly fall backwards. March 8th: He had clonic spasms of all the extremities, trismus, stertor, and bloody foam at the mouth. This lasted one hour, and he was then found to have a double optic neuritis. April 18th, he had a sacral bedsore as large as a hand. Would answer correctly but slowly and only after a time. Forehead and temples were painful on percussion. Tongue scarred. No disturbance of facial or hypoglossal nerves. Speech and swallowing normal. Eye motions free. On looking to the left, the eyes are not as easily rotated back as when he looks to the right. Right arm slightly resists passive motion; it is not as strong as the left, but manifests no tremor or ataxia. Relations of the two lower extremities same as the upper. Has cincture feeling at right knee and shin. Can walk a little, but right leg is a little unsteady. Retinæ marked by distinct white plaques and small hemorrhages, all limited to the place of entrance of the optic nerve. Veins of retinæ varicose, and papillæ of a decidedly grayish-red. According to the subsequent history of the case, the intervals between attacks became less frequent and of shorter duration. Spasms of the arm increased and sometimes affected the whole body. Standing and walking became impossible. He became totally blind. Nov. 9th, Slight paralysis of left arm, which was complete on Nov. 14th. Had developed pneumonitis, of which he died the following day. *Autopsy:* Left temporo-sphenoidal lobe generally enlarged. Tip grown fast to the basal dura. The lobe contained a glio-sarcomatous tumor extending back into the posterior horn and contained myxomatous particles. The surrounding brain tissue was softened. The frontal lobe was pushed forwards and to the right. The ventricles were much dilated and filled with clear fluid. The large ganglia on the left side were enlarged and pushed well forwards. Nothing else of interest at examination.

As Professor Westphal's case, however, was one of lesion of the left temporo-sphenoidal lobe, whilst the patient was left-handed, it was not as decisive as mine. In mine, in the left temporal lobe there was a sufficient impairment of the parts involved to lead to a severe lepto-meningitis, with adhesions; moreover, the lesion had evidently been in existence some four months, and, although it was only a meningitis of the pia, was yet sufficient to cause the persistence for this period of this peculiar loss of memory; and yet there was neither ataxic aphasia nor loss of the memory of words (amnesic aphasia in the more limited sense), nor word-deafness, nor paraphasia, nor agramatismus, nor akataphasia, nor bradyphasia, nor deafness. There was simply a general loss of memory of events, and of the persons and things involved in events.

In view, therefore of Westphal's case and mine, I think that we must abandon or modify the theory, which had been growing out of Munk's clever and famous experiments on dogs and monkeys, to the effect that the human temporal convolutions were the so-called "centres" for the mental reception of sounds. It is very probably true, as Professor Westphal suggests, that the cases hitherto reported as confirming Munk's experiments have been cases of lesions of multiple convolutions, from among which the lesion of the temporal convolutions has been arbitrarily selected as responsible for the word-deafness. These two cases also mitigate against the classification of aphasia which has been suggested by Wernicke, viz.: a division into sensory, motor, and conductive (*Leitungsaphasie*) aphasia, the first being due to lesion of the temporal and occipital convolutions, the next to lesion of the third frontal convolution, and the last being caused by impairment of the commissural fibres between the sensory and motor areas of the cortex.